

## **SEQUENCE LISTING**

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<110> Bisgard-Frantzen, Henrik
      Pedersen, Sven
      Svendsen, Allan

<120> Fungamyl-like Alpha-Amylase Variants

<130> 5835.210-US

<140> US 09/710,339
<141> 2000-11-09

<150> US 60/165,786
<151> 1999-11-16

<160> 7

<170> PatentIn version 3.2

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Val Ala Trp Trp Ser Leu Phe Leu Tyr Gly Leu Gln Val Ala Ala Pro
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gct ttg gct gca acg cct gcg gac tgg cga tcg caa tcc att tat ttc      152
Ala Leu Ala Ala Thr Pro Ala Asp Trp Arg Ser Gln Ser Ile Tyr Phe
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ctt ctc acg gat cga ttt gca agg acg gat ggg tcg acg act gcg act      200
Leu Leu Thr Asp Arg Phe Ala Arg Thr Asp Gly Ser Thr Thr Ala Thr
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tgt aat act gcg gat cag aaa tac tgt ggt gga aca tgg cag ggc atc      248
Cys Asn Thr Ala Asp Gln Lys Tyr Cys Gly Gly Thr Trp Gln Gly Ile
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atc gac aag ttg gac tat atc cag gga atg ggc ttc aca gcc atc tgg      296

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atc acc ccc gtt aca gcc cag ctg ccc cag acc acc gca tat gga gat			344
Ile Thr Pro Val Thr Ala Gln Leu Pro Gln Thr Thr Ala Tyr Gly Asp			
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gcc tac cat ggc tac tgg cag cag gat ata tac tct ctg aac gaa aac			392
Ala Tyr His Gly Tyr Trp Gln Gln Asp Ile Tyr Ser Leu Asn Glu Asn			
80	85	90	
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Tyr Gly Thr Ala Asp Asp Leu Lys Ala Leu Ser Ser Ala Leu His Glu			
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agg ggg atg tat ctt atg gtc gat gtg gtt gct aac cat atg ggc tat			488
Arg Gly Met Tyr Leu Met Val Asp Val Val Ala Asn His Met Gly Tyr			
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Asp Gly Ala Gly Ser Ser Val Asp Tyr Ser Val Phe Lys Pro Phe Ser			
130	135	140	
tcc caa gac tac ttc cac ccg ttc tgt ttc att caa aac tat gaa gat			584
Ser Gln Asp Tyr Phe His Pro Phe Cys Phe Ile Gln Asn Tyr Glu Asp			
145	150	155	
cag act cag gtt gag gat tgc tgg cta gga gat aac act gtc tcc ttg			632
Gln Thr Gln Val Glu Asp Cys Trp Leu Gly Asp Asn Thr Val Ser Leu			
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Pro Asp Leu Asp Thr Thr Lys Asp Val Val Lys Asn Glu Trp Tyr Asp			
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tgg gtg gga tca ttg gta tcg aac tac tcc att gac ggc ctc cgt atc			728
Trp Val Gly Ser Leu Val Ser Asn Tyr Ser Ile Asp Gly Leu Arg Ile			
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gac aca gta aaa cac gtc cag aag gac ttc tgg ccc ggg tac aac aaa			776
Asp Thr Val Lys His Val Gln Lys Asp Phe Trp Pro Gly Tyr Asn Lys			
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Ala Ala Gly Val Tyr Cys Ile Gly Glu Val Leu Asp Gly Asp Pro Ala			
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tac act tgt ccc tac cag aac gtc atg gac ggc gta ctg aac tat ccc			872
Tyr Thr Cys Pro Tyr Gln Asn Val Met Asp Gly Val Leu Asn Tyr Pro			
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att tac tat cca ctc ctc aac gcc ttc aag tca acc tcc ggc agc atg			920
Ile Tyr Tyr Pro Leu Leu Asn Ala Phe Lys Ser Thr Ser Gly Ser Met			
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gac gac ctc tac aac atg atc aac acc gtc aaa tcc gac tgt cca gac			968
Asp Asp Leu Tyr Asn Met Ile Asn Thr Val Lys Ser Asp Cys Pro Asp			

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tca aca ctc ctg ggc aca ttc gtc gag aac cac gac aac cca cg <sup>g</sup> ttc Ser Thr Leu Leu Gly Thr Phe Val Glu Asn His Asp Asn Pro Arg Phe				1016
290	295		300	
gct tct tac acc aac gac ata gcc ctc gcc aag aac gtc gca gca ttc Ala Ser Tyr Thr Asn Asp Ile Ala Leu Ala Lys Asn Val Ala Ala Phe				1064
305	310		315	
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cac tac gcc ggc gga aac gac ccc gc <sup>g</sup> aac cgc gaa gca acc tgg ctc His Tyr Ala Gly Gly Asn Asp Pro Ala Asn Arg Glu Ala Thr Trp Leu				1160
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385	390		395	
aag ggc aca gat ggg tcg cag atc gtg act atc ttg tcc aac aag ggt Lys Gly Thr Asp Gly Ser Gln Ile Val Thr Ile Leu Ser Asn Lys Gly				1352
400	405		410	
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415	420		425	
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430	435		440	
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450	455		460	
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465	470		475	
tcg tgaagggtgg agagtatatg atggtaactgc tattcaatct ggcattggac Ser				1597
agtgagtttg agtttgatgt acagttggag tcgttactgc tgtcatcccc ttatactctt cgattgttt tcgaacccta atgccaagca cgctagtcata ttatagaaaa aaaaaaaaaa				1657
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Phe Leu Leu Thr Asp Arg Phe Ala Arg Thr Asp Gly Ser Thr Thr Ala  
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Ile Ile Asp Lys Leu Asp Tyr Ile Gln Gly Met Gly Phe Thr Ala Ile  
45 50 55 60

Trp Ile Thr Pro Val Thr Ala Gln Leu Pro Gln Thr Thr Ala Tyr Gly  
65 70 75

Asp Ala Tyr His Gly Tyr Trp Gln Gln Asp Ile Tyr Ser Leu Asn Glu  
80 85 90

Asn Tyr Gly Thr Ala Asp Asp Leu Lys Ala Leu Ser Ser Ala Leu His  
95 100 105

Glu Arg Gly Met Tyr Leu Met Val Asp Val Val Ala Asn His Met Gly  
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Tyr Asp Gly Ala Gly Ser Ser Val Asp Tyr Ser Val Phe Lys Pro Phe  
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Ser Ser Gln Asp Tyr Phe His Pro Phe Cys Phe Ile Gln Asn Tyr Glu  
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Leu Pro Asp Leu Asp Thr Thr Lys Asp Val Val Lys Asn Glu Trp Tyr  
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Ile Asp Thr Val Lys His Val Gln Lys Asp Phe Trp Pro Gly Tyr Asn  
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Phe Ile Ile Leu Asn Asp Gly Ile Pro Ile Ile Tyr Ala Gly Gln Glu  
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Thr Tyr Lys Asn Trp Pro Ile Tyr Lys Asp Asp Thr Thr Ile Ala Met  
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